

WHAT IS CLAIMED IS:

1. A method for establishing direct mobile to mobile communication between cellular mobile terminals, said method comprising:
selecting a frequency designated as a mobile communication frequency within
5 a cellular communication system;
transmitting by a first mobile terminal a communication initiation sequence at the selected frequency;
monitoring by a second mobile terminal the designated mobile communication frequencies; and
10 detecting by the second mobile terminal the communication initiation sequence.
2. The method in accordance with claim 1 wherein prior to transmitting by a first mobile terminal a communication initiation sequence at the selected frequency, a user
15 actuation is received.
3. The method in accordance with claim 1 wherein selecting a frequency includes determining the region in which the first mobile terminal is operating, and selecting a mobile communication frequency for the determined region.
20
4. The method in accordance with claim 3 wherein the mobile communication frequency is a mobile transmission frequency for the determined region.
5. The method in accordance with claim 3 wherein the mobile communication
25 frequency is a mobile reception frequency for the determined region.
6. The method in accordance with claim 3 wherein determining the region in which the first mobile terminal is operating includes receiving an operating region selection from a user.

30

7. The method in accordance with claim 3 wherein determining the region in which the first mobile terminal is operating includes receiving one or more global positioning system signals.
- 5 8. The method in accordance with claim 3 wherein determining the region in which the first mobile terminal is operating includes maintaining a record of the last region in which the first mobile terminal successfully operated.
9. The method in accordance with claim 1 wherein selecting a frequency
10 includes selecting a frequency that is designated as a mobile transmit frequency in a first supported region and is designated as a mobile receive frequency in a second supported region.
10. The method in accordance with claim 9 wherein the first supported region is
15 the region in which the first mobile terminal is operating
11. The method in accordance with claim 1 wherein the communication initiation sequence includes frequency and timing information for use in the remainder of the communication between the mobile terminals.
- 20 12. The method in accordance with claim 1 further comprising prior to selecting a frequency and further establishing the direct mobile to mobile communication, scanning for existing network coverage by the first mobile terminal, wherein direct mobile to mobile communication is authorized in areas where at least one of network
25 coverage is insufficient or where authorization for direct mobile to mobile communication is obtained from the network.
13. The method in accordance with claim 12 wherein, when authorization is obtained from the network, the frequency selected corresponds to any frequency
30 designation supplied by the network.

14. The method in accordance with claim 1 further comprising, after selecting a frequency, selecting a channel associated with the selected frequency after monitoring the channel to insure the channel is not being currently used.

5

15. The method in accordance with claim 1 wherein the initiation sequence is transmitted for a period of time having a duration that overlaps at least a portion of the wake-up period of the second mobile terminal.

10 16. The method in accordance with claim 1 wherein after detecting the communication initiation sequence by the second mobile terminal, the second mobile terminal transmits an acknowledgement signal, in response to a detected communication initiation sequence.

15 17. The method in accordance with claim 16 wherein the acknowledgement signal includes receiver quality data.

18. The method in accordance with claim 17 wherein the receiver quality data includes receiver level information.

20

19. The method in accordance with claim 16 wherein the acknowledgement signal is transmitted by the second mobile terminal at the selected frequency at alternative times relative to the transmissions from the first mobile terminal at the selected frequency.

25

20. The method in accordance with claim 19 wherein the alternative times that the second mobile terminal transmits a signal at the selected frequency has a predetermined time offset relative to any corresponding adjacent transmission from the first mobile terminal.

30

21. The method in accordance with claim 19 wherein the transmissions from each of the first and second mobile terminals at the selected frequency are part of a time division duplex channel.
- 5 22. The method in accordance with claim 1 wherein the cellular mobile terminals including the first mobile terminal and the second mobile terminal are multi-region devices.
23. A cellular mobile terminal adapted for direct mobile to mobile
10 communication, said mobile terminal comprising:
a transmitter;
a receiver; and
a control circuit, coupled to the transmitter and the receiver,
wherein at least one of the transmitter and the receiver is adapted to function at
15 a frequency of operation, corresponding to the other one of the transmitter and the receiver.
24. A cellular mobile terminal in accordance with claim 23 wherein the receiver includes a preselection filter, which is adapted to pass frequencies including
20 transmitter frequencies of operation of the mobile terminal.
25. A cellular mobile terminal in accordance with claim 23 wherein the receiver includes a voltage controlled oscillator having an operational range that is extended to include transmitter frequencies of operation of the mobile terminal.
- 25 26. A cellular mobile terminal in accordance with claim 23 wherein the transmitter includes a transmission bandpass filter, which is adapted to pass frequencies including receiver frequencies of operation of the mobile terminal.

Black et al.
Attorney Docket No. CS21051RL
Express Mail No. EV 203579244 US

27. A cellular mobile terminal in accordance with claim 23 wherein the transmitter includes a voltage controlled oscillator having an operational range that is extended to include receiver frequencies of operation of the mobile terminal.
- 5 28. A cellular mobile terminal in accordance with claim 23 wherein the control circuit includes a user actuated switch adapted to initiate a mobile to mobile communication.